

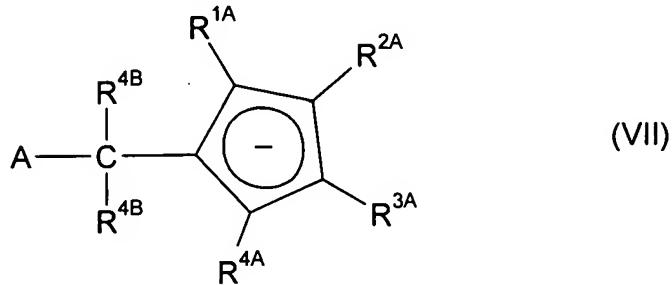


U.S. Patent Application
Serial No. 10/539,342

ATTACHMENT A

Claims 1 - 11: (Cancelled)

12. (Currently Amended) A process for preparing cyclopentadienyl system anions of the formula (VII),



where the variables have the following meanings:

R^{1A}-R^{4A} are each, independently of one another, hydrogen, C₁-C₂₀-alkyl, C₂-C₂₀-alkenyl, C₆-C₂₀-aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, NR^{6A}₂, N(SiR^{6A}₃)₂, OR^{6A}, OSiR^{6A}₃, or SiR^{6A}₃ where the organic radicals R^{1A}-R^{4A} may also be substituted by halogens and two vicinal radicals R^{1A}-R^{4A} may also be joined to form a five- or six-membered ring, and/or two vicinal radicals R^{1A}-R^{4A} are joined to form a heterocycle which contains at least one atom selected from the group consisting of N, P, O and S,

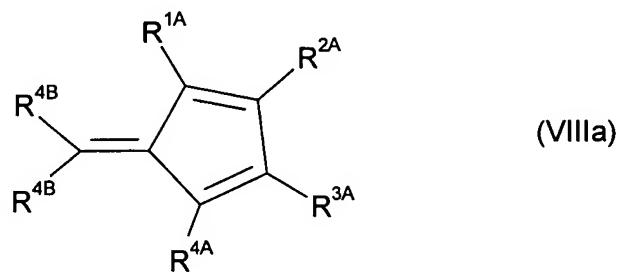
R^{6A} are each, independently of one another, hydrogen, C₁-C₂₀-alkyl, C₂-C₂₀-alkenyl, C₆-C₂₀-aryl, or alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part and two geminal radicals R^{6A} may also be joined to form a five- or six-membered ring,

A is an unsubstituted, substituted or fused, heteroaromatic ring system,

R^{4B} are each, independently of one another, hydrogen, C₁-C₂₀-alkyl, C₂-C₂₀-alkenyl, C₆-C₂₀-aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part or SiR^{3B}₃, where the organic radicals R^{4B} may also be substituted by halogens and two geminal or vicinal radicals R^{4B} may also be joined to form a five- or six-membered ring and

R^{3B} are each, independently of one another, hydrogen, C₁-C₂₀-alkyl, C₂-C₂₀-alkenyl, C₆-C₂₀-aryl or alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part and two radicals R^{3B} may also be joined to form a five- or six-membered ring,

which comprises the step a) or a'), where, in step a), an A⁻ heteroaromatic ring system anion comprising a negative charge on a carbon atom adjacent to a heteroatom in the A⁻ heteroaromatic ring system is reacted with a fulvene of the formula (VIIa)

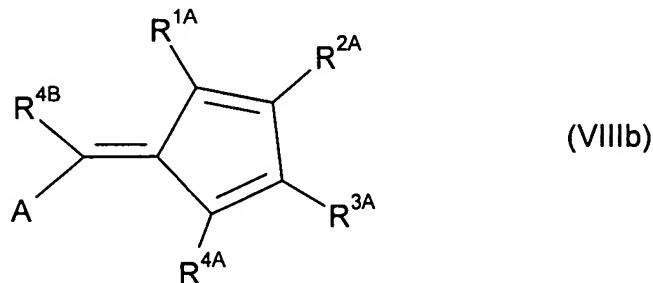


or,

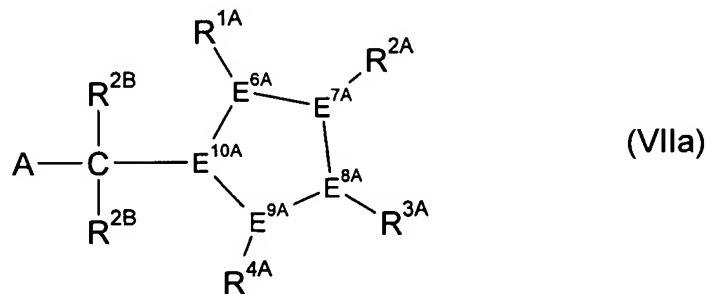
in step a'), an organometallic compound R^{4B}M^BX^B where M^B is a metal of group 1 or 2 of the Periodic Table of the Elements,

X^B is halogen, C₁-C₁₀-alkyl, alkoxy having from 1 to 20 carbon atoms in the alkyl radical and/or from 6 to 20 carbon atoms in the aryl radical, or R^{4B} and

b is 0 when M^B is a metal of group 1 of the Periodic Table of the Elements, and is 1 when M^B is a metal of group 2 of the Periodic Table of the Elements, is reacted with a fulvene of the formula (VIIIb):



13. (Previously Presented) A process for preparing cyclopentadiene systems of the formula (VIIa)



where the variables have the following meanings:

E^{6A}-E^{10A} are each carbon, where in each case four adjacent E^{6A}-E^{10A} form a conjugated diene system and the remaining E^{6A}-E^{10A} additionally bears a hydrogen atom,

R^{1A} - R^{4A} are each, independently of one another, hydrogen, C_1 - C_{20} -alkyl, C_2 - C_{20} -alkenyl, C_6 - C_{20} -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, NR^{6A}_2 , $N(SiR^{6A}_3)_2$, OR^{6A} , $OSiR^{6A}_3$, or SiR^{6A}_3 , where the organic radicals R^{1A} - R^{4A} may also be substituted by halogens and two vicinal radicals R^{1A} - R^{4A} may also be joined to form a five- or six-membered ring, and/or two vicinal radicals R^{1A} - R^{4A} are joined to form a heterocycle which contains at least one atom selected from the group consisting of N, P, O and S,

R^{6A} are each, independently of one another, hydrogen, C_1 - C_{20} -alkyl, C_2 - C_{20} -alkenyl, C_6 - C_{20} -aryl, or alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part and two geminal radicals R^{6A} may also be joined to form a five- or six-membered ring,

A is an unsubstituted, substituted or fused, heteroaromatic ring system,

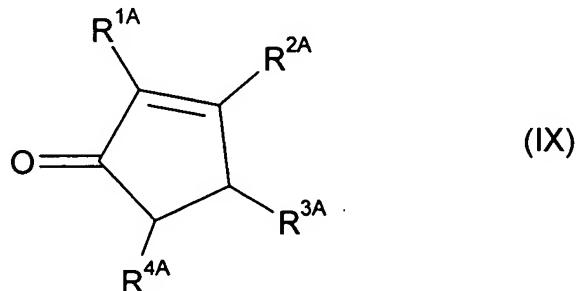
R^{2B} are each, independently of one another, hydrogen, C_1 - C_{20} -alkyl, C_2 - C_{20} -alkenyl, C_6 - C_{20} -aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part or SiR^{3B}_3 , where the organic radicals R^{2B} may also be substituted by halogens and R^{2B} and A may also be joined to form a five- or six-membered ring,

R^{3B} are each, independently of one another, hydrogen, C_1 - C_{20} -alkyl, C_2 - C_{20} -alkenyl, C_6 - C_{20} -aryl or alkylaryl having from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part

and two radicals R^{3B} may also be joined to form a five- or six-membered ring,

which comprises the following step:

a'') reaction of an $A-CR^{2B}R^{2B-}$ anion with a cyclopentenone system of the formula (IX)

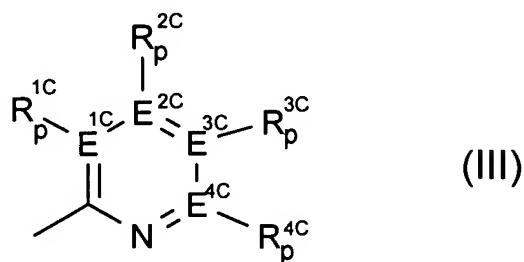


14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Previously Presented) The process as claimed in claim 12, wherein A has the formula (III) :



wherein

$E^{1C}-E^{4C}$ are each carbon or nitrogen;

$R^{1C}-R^{4C}$ are each, independently of one another, hydrogen, C_1-C_{20} -alkyl, C_2-C_{20} -alkenyl, C_6-C_{20} -aryl, alkylaryl

comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or SiR^{5c}_3 , wherein R^{1c} - R^{4c} are optionally substituted by at least one halogen, nitrogen, $\text{C}_1\text{-}\text{C}_{20}$ -alkyl group, $\text{C}_2\text{-}\text{C}_{20}$ -alkenyl group, $\text{C}_6\text{-}\text{C}_{20}$ -aryl group, alkylaryl group comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part or SiR^{5c}_3 , and two vicinal R^{1c} - R^{4c} or R^{1c} and Z are optionally joined to form a five- or six-membered ring;

R^{5c} are each, independently of one another, hydrogen, $\text{C}_1\text{-}\text{C}_{20}$ -alkyl, $\text{C}_2\text{-}\text{C}_{20}$ -alkenyl, $\text{C}_6\text{-}\text{C}_{20}$ -aryl or alkylaryl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, and two R^{5c} are optionally joined to form a five- or six-membered ring; and

p is 0 when E^{1c} - E^{4c} is nitrogen, and is 1 when E^{1c} - E^{4c} is carbon.